REMARKS/ARGUMENTS

Claims are 1-2, 5-10, 12-21 are currently pending in the present application. Claims 1, 2, 5, 9, 10, 12, 14, 17-19, and 21 have been amended. Claims 3-4, 11, and 22-30 and have been canceled. No new matter has been added in the amended claims. Reconsideration of the claims is respectfully requested.

Claim Rejections - 35 U.S.C. § 112

Claims 1-30 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The pending independent claims have been amended to obviate this rejection.

Claims 18 and 28 were rejected under 35 U.S.C. § 112, first paragraph, as being indefinite for failing to particularly point out the subject matter which applicant regards as the invention. In response, claim 18 has been amended to remove the language upon which the Examiner based this rejection and claim 28 has been canceled.

Claim Rejections - 35 U.S.C. § 102

Claims 1-30 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,144,353 to McKnight.

As discussed with the Examiner during the telephone interview on December 8, 2004, the present invention discloses a method, in one embodiment, of reducing the amount of time required to "paint" pixels in a liquid crystal display. To reduce the amount of waiting time, embodiments of the present invention include applying an initial (transition) voltage to all pixels on the display. P. 6, lines 23-29. This initial voltage is maintained on each pixel, until the paint voltage for each pixel overwrites the initial voltage. P. 6, lines 30-32. For example, as illustrated in figure 2, first the transition voltage is applied to all the pixels inducing the liquid crystal material of all the pixels towards the bright state. Second, the actual value for each pixel is written into the pixels within the first millisecond.

As is shown in figure 2, if the last pixel in the display should be the bright state, the paint voltage and the transition voltage will be both approximately the same. Notably, as is illustrated in figure 2, because, the transition to the bright state for the last pixel began at about

time 0 (in response to the transition voltage), the last pixel is in the bright state at about 3.5 milliseconds.

In contrast to figure 1A, in the example in figure 2, the response time of the display is reduced by about 22% ((4.5-3.5)/4.5 = 22%). This is a significant improvement in performance.

McKnight, on the other hand, discusses a display system in which a display is quickly driven dark and held dark for a period of time, represented by the time t_0 - t_1 in figure 2C. During the time t_0 - t_1, the pixel electrodes are painted with paint voltages, but the liquid crystal material does not transition and the display data is not visible. (McKnight at col. 10, lines 8-19). After the pixel data is loaded, at time t_1, the voltage on the control electrode is reduced so that the liquid crystal material begins to react to the paint voltage as illustrated by curve 154 in figure 2C of McKnight. (McKnight at col. 10, lines 19-26).

Claim 1 recites "applying a single transition voltage to the plurality of pixel elements" and "while the liquid crystal material for each pixel element is performing the slow transition to the second state in response to the application of the single transition voltage, <u>initiating application of a first paint voltage</u> to one pixel element of the plurality of pixel elements." As we discussed during the interview, the method recited by claim 1 <u>initiates the application</u> of the paint voltage <u>while the liquid crystal material is performing the slow transition</u>, whereas in McKnight, the paint voltage is applied (pixel data is loaded) while the liquid crystal material is not transitioning. For at least this reason, claim 1 is in a condition for allowance.

Claims 2 and 5-8, which depend from claim 1, are in a condition for allowance, for at least the reasons discussed in relation to claim 1, as well as for the additional limitations they recite.

Claim 9 recites "a transaction circuit coupled to each pixel element in the plurality of pixel elements, <u>the transaction circuit configured to apply a first transition voltage to the plurality of pixel elements</u>" and "a paint circuit coupled to the transaction circuit, the paint circuit configured to initiate application, <u>while the liquid crystal material for each pixel element is performing the slow transition to the second state in response to the application of the single</u>

transition voltage, of a first paint voltage during a second time period within the first field time to one pixel element from the plurality of pixel elements." As discussed in relation to claim 1, claim 9 discloses an embodiment of the present invention in which the paint circuit initiates application of the paint voltage while the liquid crystal material for each pixel element is performing the slow transition to the second state in response to the application of the single transition voltage. For at least this reason, claim 9 is in a condition for allowance.

Claims 10 and 12-16, which depend from claim 9, are in a condition for allowance, for at least the reasons discussed in relation to claim 9, as well as for the additional limitations they recite.

Claim 17 recites "an initializing circuit coupled to the plurality of pixels configured to apply a first voltage to the plurality of pixels during a first time period of a first field, [ ] wherein the first voltage induces liquid crystal material in each pixel to begin transitioning to the second state" and "a driving circuit coupled to the initializing circuit configured to initiate application of a drive voltage during a second time period within the first field, wherein while the liquid crystal material for each pixel is performing the slow transition to the second state in response to the application of the first voltage, the application of the drive voltage induces the liquid crystal material in the one pixel to begin transitioning to a third state." As discussed in relation to claims 1 and 9, McKnight does not teach or suggest the application of a first voltage, wherein the first voltage induces liquid crystal material in each pixel to begin transitioning to the second state, and while the liquid crystal material for each pixel is performing the slow transition to the second state in response to the application of the first voltage, the application of the drive voltage that induces the liquid crystal material in the one pixel to begin transitioning to a third state. As discussed, McKnight only discusses applying the drive voltage while the liquid crystal material is not transitioning. For at least this reason, claim 17 is in a condition for allowance.

Claims 18-21, which depend from claim 17, are in a condition for allowance, for at least the reasons discussed in relation to claim 17, as well as for the additional limitations they recite.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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